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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/973,017	03/25/1998	MATS LEIJON	70557-2/8239	6304

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EXAMINER

MULLINS, BURTON S

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 02/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/973,017

Applicant(s)

LEIJON ET AL.

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-10, 12-26, 28-35, 37, 39, 40 and 43-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10, 12-26, 28-35, 37, 39, 40 and 43-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

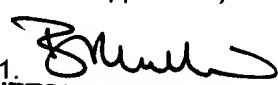
- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____


BURTON S. MULLINS
PRIMARY EXAMINER

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 28-29, 31 and 40 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 28 recites a quadrature-axis synchronous reactance, claim 29 recites an excitation system for enabling both positive and negative excitation, claim 31 recites the stator and rotor circuits and cooling means with a liquid or gaseous coolant; and claim 49 recites a winding comprising multiple uninterrupted turns. There is no support found in the specification for the recited features in these claims.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-4, 6-8, 10, 12-13, 21, 31-32, 34-35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck (US 3,014,139) in view of Elton et al. (US 5,036,165). Shildneck discloses the claimed invention except for utilizing a particular cable for its stator winding and casting the stator slots with a compound to partially fill the slots. Shildneck discloses an improved continuous winding drawn through first, second and third

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slots of an electromagnetic machine, e.g. a large turbo-generator (Fig.3), wherein the winding employs an improved form of flexible, insulated conductor for the laminated armature core of the dynamo-electric machine.

Elton teaches that it is known to have an electrical cable comprising an internal grading layer of semi-conducting pyrolyzed glass fiber layer in electrical contact with the cable conductor. In another embodiment, Elton teaches an electrical cable with an exterior layer of internal grading layer of semi-conducting pyrolyzed glass fiber in contact with an exterior cable insulator with a predetermined reference potential. Elton's cable winding minimizes the possibilities of corona discharge, especially in dynamo-electric machine stator core windings (c.1, lines 16-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a high voltage cable as taught by Elton for the winding conductors disclosed in Shildneck since such a cable minimizes the possibilities of corona discharge in stator core windings.

With regard to claim 2, it would have been obvious to have the inner semi-conductor layer and the outer semi-conductor layer of the same coefficient of thermal expansion in order to prevent cracking and reduce strain.

With regard to claim 13, Shildneck teaches cylindrical openings in the stator slots for the windings, with narrow waist parts 5 between the openings (Fig.1).

5. Claims 9, 13-20, 30, 33, 39-40 and 43-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck and Elton in view of Takaoka (US 5,094,703) and UK Patent No. 468,827 (incorrectly described as "German Patent Specification No.468,827 in the previous

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action). Shildneck and Elton substantially teach applicant's invention including a continuous, uninterrupted-turn winding and semi-conductive layers comprising an electrical field confining cover, but do not teach cable windings with plural strands of insulated and uninsulated conductors. Neither do Shildneck or Elton teach cylindrical winding slots with varying diameters.

Takaoka teaches a stranded large-sized, power transmission cable comprising a combination of uninsulated stranded conductors and insulated conductors (Figs.7-8, 10&11). The combination of insulated and uninsulated conductors reduces the total amount of insulation needed and reduces the coefficient of skin effect (c.2, lines 16-30).

It would have been obvious to modify Shildneck and Elton and provide insulated and uninsulated conductors per Takaoka since it would have reduced the coefficient of skin effect on the cable as well as the total amount of insulation needed for manufacture.

UK Patent No.468,827 teaches a high voltage, AC machine and stator having cylindrical conductor slots of varying diameters so as to accommodate windings of varying diameters appropriate for difference voltages occurring with respect to the low voltage end of the winding (lines 16-29).

It would have been obvious to modify Shildneck and Elton and provide a slot arrangement per UK Patent No.468,827 so as to accommodate windings of varying diameters appropriate for different voltages in the winding.

Response to Arguments

6. Applicant's arguments filed 7-23-01 have been fully considered but they are not persuasive. With regard to applicant's assertion that there is no evidence of desirability to modify the winding of Shildneck, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Further, in response to applicant's argument that Shildneck teaches a "low-voltage" machine and not a "high-voltage" machine, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

In response to the argument that Elton (Fig.1) does not disclose a cable used as a winding in a dynamo-electric machine, it is clear from c.1, lines 25-35 that Elton intends his cable to be used as stator core windings in high powered dynamo-electric machines. Elton's cable with equipotential semi-conducting layers is designed to bleed off charge (c.2, lines 43-

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47) and thus prohibit corona discharge, which is known to exist in stator core windings (c.1, lines 32-35).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reduction of corona discharge in stator core windings would motivate one to use Elton's cable as such a winding.

Lastly, with regard to applicant's assertion that one of ordinary skill would not have a reasonable expectation of success if the machine in Shildneck were modified with high voltage cables such as Elton due to the latter's purported "inflexibility and brittleness," the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Elton's cable winding minimizes the possibilities of corona discharge. Further, the whole notion that the glass layer of cable would crack when wound on the machine is completely unsubstantiated. Or is applicant saying that due to normal wear and tear, cracks would eventually develop? In either case, given Elton's explicit desire to prevent corona discharge in stator core windings, it is

unreasonable to assume that one of ordinary skill would allow the cable to "crack" when wound around a core and even more unreasonable to describe the cracks as "promoting" corona discharge.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on 9-5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez, can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
February 7, 2002